MW & BC Funded Projects
1973-74

TITLE: Correlation of crop response to fertilizer additives with soil properties, soil test results and climatic factors

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: Rick Rodden, Alice Jones

AMOUNT FUNDED: $20,000.00

OBJECTIVES:

1) Continue the acquisition, at a reduced level, of N top dressing correlation data;

2) Acquisition of sufficient field data to determine the lowest N topdressing rates, the latest application times and most effective form of fertilizer to effect significant increases in grain protein content of wheat;

3) Completion of computer analysis of N topdressing correlation data;

4) Improvement of current or devise new laboratory soil tests for available K, S and P;

5) Acquisition of sufficient field correlation data to improve prediction of crop needs for K, S, P and other fertilizer nutrients;

6) Refine the new laboratory soil test for available nitrate-nitrogen;

7) Determine environmental impact of fertilizer use.

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TITLE: Winter Wheat Improvement

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: G. Allan Taylor

AMOUNT FUNDED: $8,650.00

OBJECTIVES:

1) Protein improvement

2) Supplement continuing research efforts in winter wheat breeding program.

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TITLE: Resistance and/or tolerance of wheat to leaf and head blotch diseases

INSTITUTION: Montana State University

DEPARTMENT: Plant Pathology

RESEARCHERS: J. F. Brown

AMOUNT FUNDED: $5,032.00

OBJECTIVES:

1) Evaluate spring and winter wheats for resistance or tolerance to Septoria.

   a. Varieties grown in the state not previously tested and lines being considered for release.

   b. Collect and evaluate new isolates of the casual fungus which may have different abilities to cause disease.

2) Initiate crosses among the more resistant varieties and lines to determine the possibility of obtaining greater resistance or tolerance.

3) Extend research on a Helminthosporium leaf spot disease of wheat found for the first time in Montana in 1972.

   a. Develop better methods for producing inoculum for use in greenhouse and field studies.

   b. Determine importance of the disease to wheat production when developing at different plant growth stages.

c. Determine possible interaction of Helminthosporium and Septoria in causing damage to wheat.

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TITLE: Development of control measures for soil-borne diseases of wheat

INSTITUTION: Montana State University

DEPARTMENT: Plant Pathology

RESEARCHERS: D. E. Mathre

AMOUNT FUNDED: $12,500.00

OBJECTIVES:

1) Determine if very low rates of application of seed treatment Fungicides will provide adequate control of stinking smut of wheat.

2) Continue the study of the effect of crop rotation on the incidence of soil-borne diseases of wheat and determine whether a quick, economical soil assay for the presence of the pathogens can be developed.

3) Continue the work related to the search for and development of disease resistant wheats, including those lines received from Japan that are reported to be resistant to Cephalosporium stripe.

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TITLE: To develop cultural methods suitable for the continuous cropping of the drylands of Montana.

INSTITUTION: Montana State University

DEPARTMENT: Research Centers

RESEARCHERS: Richard T. Harada

AMOUNT FUNDED: $22,000.00

OBJECTIVES:

1) The development of continuous cropping systems to replace the present fallow system is a complex problem. Many unforeseeable conditions arise. Less time is available for seedbed preparation. More land will have to be seeded and harvested annually. Weeds and other pests will probably be more troublesome. The fertility moisture inventory, and plant population relationships will be more critical. The machinery, especially for seeding, will require modification. As seasons vary from year to year, more flexibility in respect to crop selection, methods of tillage, and method of harvest or crop utilization will be required.

2) In view of the above problems, it becomes nearly impossible for any one Research Center to conduct research on all facets of any changes. Thus, each Center will work on some phase of the problem with the hope that the farmers will be able to put together a system of continuous cropping that will be best suited for his conditions.

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TITLE: Resistance of wheat to stem rust caused by Puccinia graminim var. tritici.

INSTITUTION: Montana State University

DEPARTMENT: Plant Pathology

RESEARCHERS: Jack Reisellman

AMOUNT FUNDED: $10,432.00

OBJECTIVES:

1) Control stem rust of wheat by resistant varieties and incorporate genes conferring long-lasting resistance.

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TITLE: A proposal for partial support of work on high lysine barley

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: Bob Eastlick

AMOUNT FUNDED: $7,000.00

OBJECTIVES:

1) Development of a genetic method for a rapid, inexpensive, transfer of the hi-lysine gene, lys 1 lys1, of Hiproly barley to desirable agronomic type.